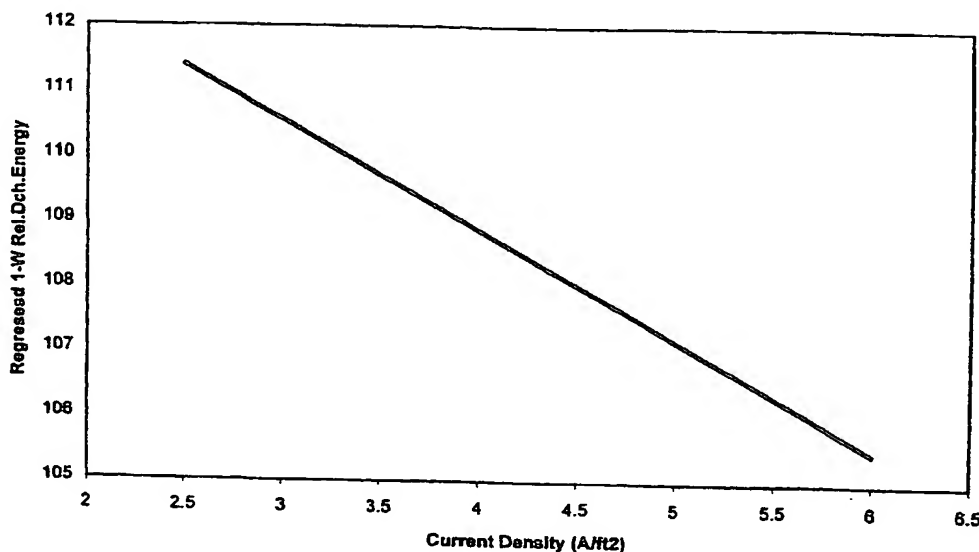




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷: C25B 1/21, H01M 4/04, 4/50	A1	(11) International Publication Number: WO 00/37714 (43) International Publication Date: 29 June 2000 (29.06.00)
(21) International Application Number: PCT/US99/30386 (22) International Filing Date: 20 December 1999 (20.12.99) (30) Priority Data: 09/217,168 21 December 1998 (21.12.98) US (71) Applicant: KERR-MCGEE CHEMICAL, L.L.C. [US/US]; Kerr McGee Center, Oklahoma City, OK 73125 (US). (72) Inventors: ANDERSON, Terrell, Neils; 500 Concord Lane, Edmond, OK 73003 (US). BURKHARDT, Samuel, Faust; 1404 Bella Vista Drive, Edmond, OK 73034 (US). HOWARD, William, Frederick, Jr.; 648 Wildmeadow Drive, Edmond, OK 73003 (US). WOHLTZ, Richard, F.; 1786 Colt Place, Las Vegas, NV 89119 (US). KAZE- ROONI, Vahid; 12517 N.W. 4th Street, Yukon, OK 73009 (US). MOUMENZADEH, Mohammad, Reza; 1228 S.W. 74th Street, #236, Oklahoma City, OK 73139 (US). UNSELL, Amy, Wren; 12309 Max Lane, Choctaw, OK 73020 (US). (74) Agents: LABRIE, Michael, J. et al.; McAfee & Taft, Tenth Floor, Two Leadership Square, 211 North Robinson, Okla- homa City, OK 73102 (US).		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the</i> <i>claims and to be republished in the event of the receipt of</i> <i>amendments.</i>
(54) Title: HIGH DISCHARGE CAPACITY ELECTROLYTIC MANGANESE DIOXIDE AND METHODS OF PRODUCING THE SAME		

**(57) Abstract**

The present invention provides improved cathode material comprised of electrolytic manganese dioxide having high discharge capacity at high discharge rates and methods of producing such electrolytic manganese dioxide by electrolysis in an electrolytic cell. The methods are basically comprised of maintaining a heated high purity aqueous electrolyte solution comprising sulfuric acid and manganese sulfate in the electrolytic cell, the manganese sulfate being present in the solution whereby it contains in the range of from about 5 to about 50 grams of manganese per liter of solution. An electric current is applied to the electrodes of the electrolytic cell whereby the anodic electrode current density is in the range of from about 2.5 to about 6 amperes per square foot. A graphical representation of the experimental results shows that relative discharge energy decreases as the anodic electrode current density increases.